



Manufacturer: Shenzhen Helixin Technology Co., Ltd.
Address: Building 2, Jiufang Square, No. 9 Zaizi Road, Gongle Community, Xixiang Subdistrict, Bao'an District, Shenzhen City

承 认 书

SPECIFICATION FOR APPROVAL

客户名称 Customer Name			
客户项目名Customer Project Name	Z01	合立讯项目名 Helixun Project Name	Z01
客户编码 Customer P/N		合立讯料号 Helixun P/N	HLX-Z01-JL
频段 Band	2400-2500MHZ		
版本号 Version	A0		

产品图纸或实物图片
Drawing or Product Image

1

2

3

4

5

6

7

8

A

A

丝印白色，天线黑色

外形

镀金区

线路区

离型纸手撕位

V.1
V.2
V.3
V.4
V.5
V.6

深圳合立讯科技有限公司

第三角法	机种	日期	设计	审核	页码	核准
0~10 ±0.10 0.02	Z01	2023-12-01	黄亚飞	黄亚飞	1 of 1	
10~20 ±0.12 0.02	HT天线					
20~40 ±0.15 0.02	料号 HLY-Z01-JL	结构	黄亚飞			
40~ ±0.20 0.04	材质 FPC+3M471	射频	黄亚飞			
0.02	模面处理					
位置	外观处理		单位	比例	版本	REV.A

注:

- 背胶采用3M 9471 300LSE, 粘性在300MP以上,背胶外形与基材一致,覆在基材背面 ,背胶做半切;
- 材料单面版, 半对半基材, 柔韧性要好;
- 产品覆油后经180°折弯表面无裂痕现象,柔韧性要好;
- 金手指表面镀金,不可有氧化现象,以铜脂相接处, 经180°折弯之后无裂痕、不导通现象 ;
- 走线及孔精确公差范围:±0.03mm, 外形尺寸公差控制在0.1mm以内;
- 打★号为严格控制尺寸, 标有*为重点尺寸, 未标注尺寸按GD电子图档1:1量取;
- 表面印字, 具体内容及位置见图;
- 所未非模样, 需要切割好外形之后, 在送样到我司.

No.	Layer	Description(Thickness)	Manufacturer & P/N
1	背胶	3M9471LM	3M
2	基材	KIM-800F NH3<(10 μm>	紫伦格蒂
3	印油	PSM-800FSM-HSMH-80	优立

1	2	3	4	5	6	7	8
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Sample Dimensions Test Report

客户名称 Customer Name	深圳市汇蓝电子有限公司	客户料号 Customer P/N		合立讯料号 Helixun P/N	HLX-Z01-JL
测试日期 Test Date	2023-12-27	样品数量 Sample Qty.	3	测试人 Inspector	尹永康
尺寸编号 Dimension No.	标准 Standard	样品 1 Sample 1	样品 2 Sample 2	样品 3 Sample 3	Pass/NG
①长度	27.95mm±0.2mm	27.00mm	27.90mm	27.99mm	Pass
②宽度	5.00mm±0.2mm	5.00mm	5.10mm	4.95mm	Pass
③厚度	0.20mm±0.05mm	0.22mm	0.20mm	0.22mm	Pass
④					
⑤					
⑥					
⑦					

RF Performance Test Report

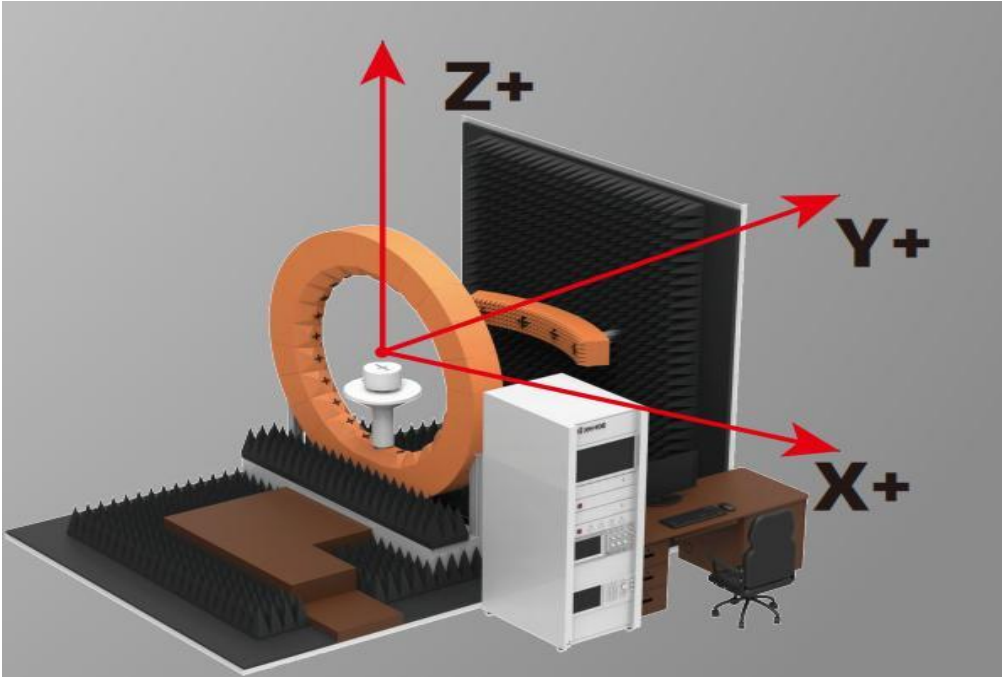
客户名称 Customer Name		项目名称 Project Name	Z01	合立讯料号 Helixun P/N	HLX-Z01-JL
频段 Band	2400-2500MHZ	测试日期 Test Date	2023-12-27	测试人 Inspector	

天线测试设备简介

Antenna Test Equipment Introduction

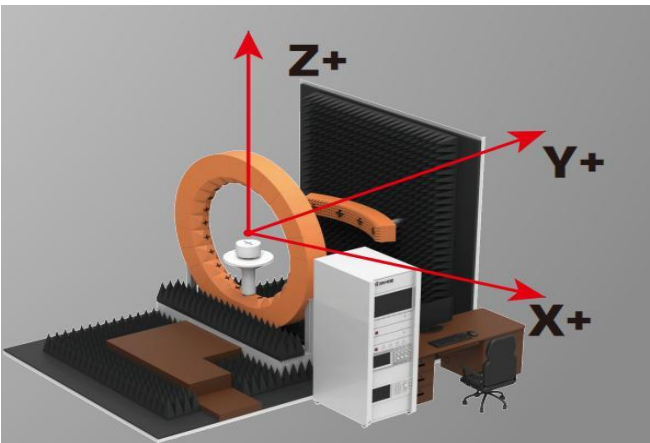
测试天线输入特性使用 **Agilent E5071C and Agilent 5071C** 矢量网络分析仪；辐射特性利用 ETS 三维近场暗室进行测试，并分别使用 CMW500 和 Agilent 5071C 进行了分析。暗房的测试坐标如下：

Test of antenna input characteristics using **Agilent E5071C and Agilent 5071C** vector network analyzer；The radiation pattern of the antenna are tested using the ETS starlab 3D near field Anechoic Chamber, and the instrument is used to agilent8960 E5515 and Agilent E4438C. The test coordinates of the darkroom are as follows：



TestSystem

Sequence Number	Test Item	equipment
S parameter	VSWR	Agilent 5071C & Agilent 5062A
OTA Test	TRP&TIS	Agilent 8960 E5515C& Agilent 4438C&CMW500 ETS&SATIMO
		ETS&SATIMO
Gain & Efficiency	Gain & Efficiency	Agilent 5071C



3.Test Result

3.1 S11 Parameter-VSWR L



4

frequency (MHz)	2400	2450	2480	2500
VSWR	2.06	1.35	1.80	2.30

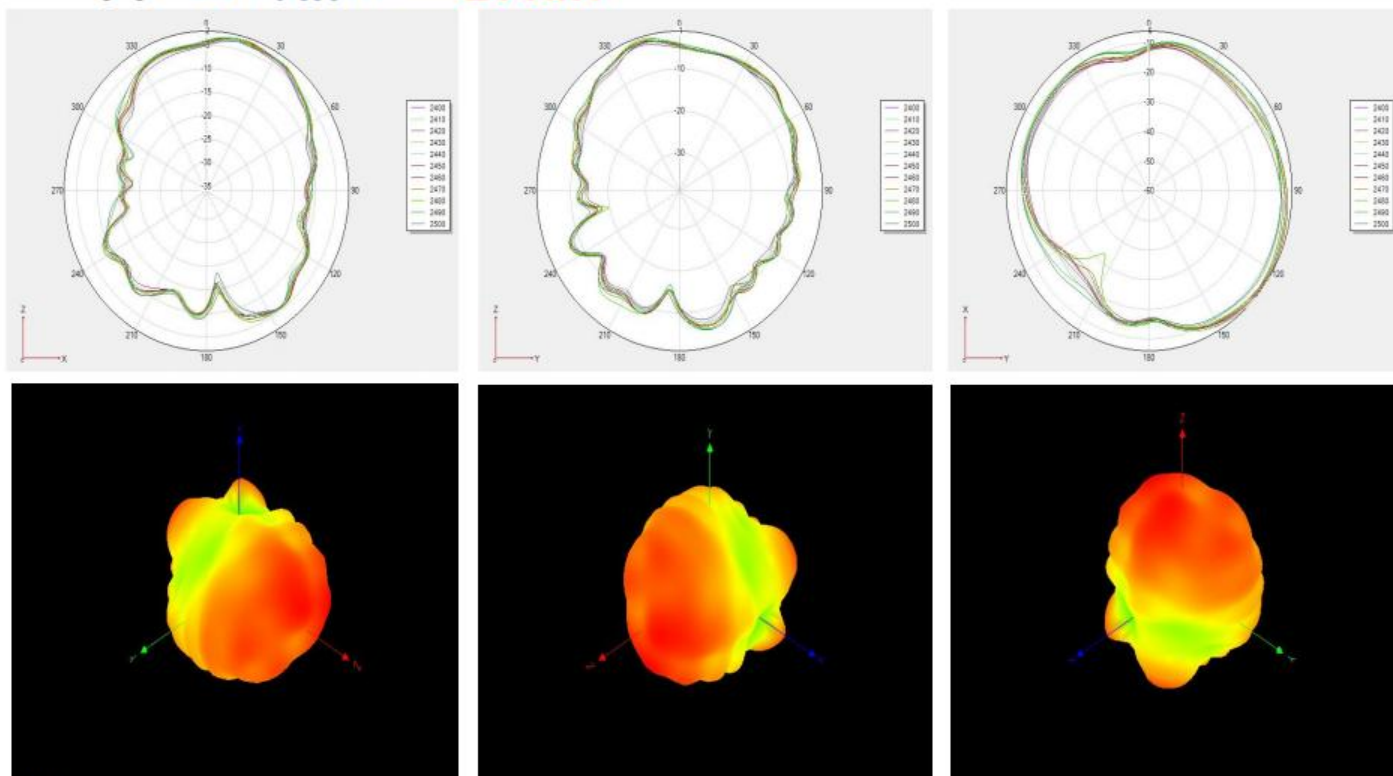
3.Test Result-L

3.2 Gain & Efficiency—ANT

Frequency (MHz)	Efficiency (%)	Max GAIN (dBi)
2400	24.77	-2.01
2410	25.55	-1.24
2420	25.28	-1.39
2430	26.22	-1.35
2440	26.22	-1.14
2450	27.61	-1.07
2460	26.79	-1.31
2470	25.96	-1.39
2480	26.18	-1.61
2490	25.67	-1.17
2500	24.42	-2.07

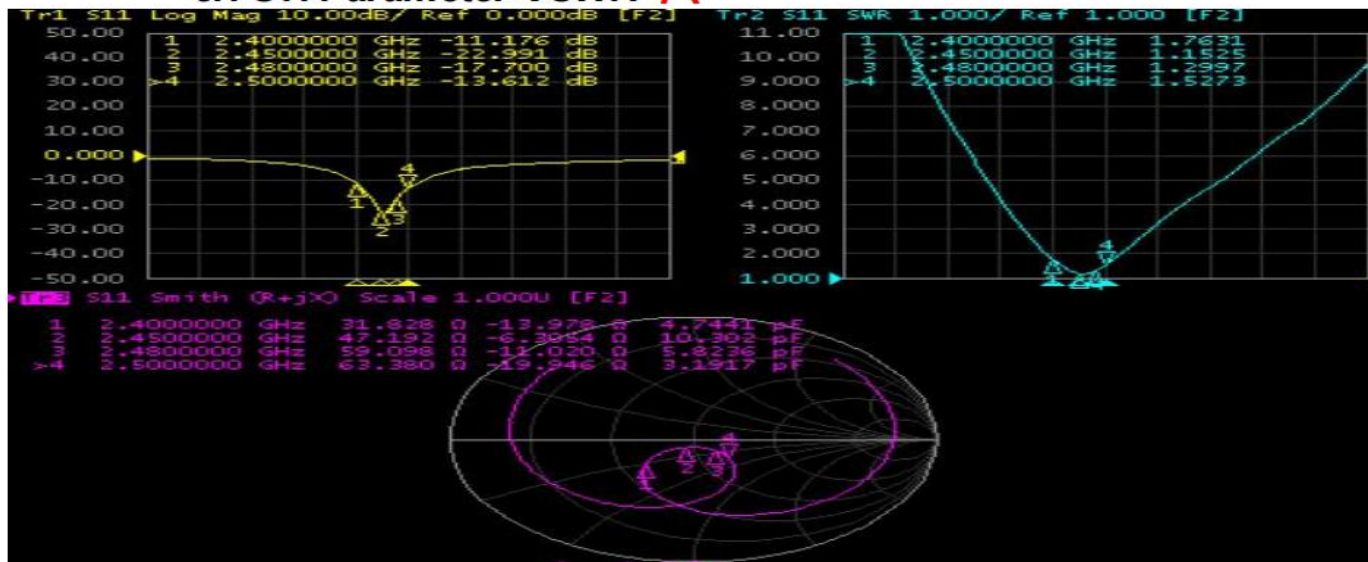
3. Test Result-L

3.3 2D Pattern—BT ANT



3. Test Result

3.1 S11 Parameter-VSWR R



frequency (MHz)	2400	2450	2480	2500
VSWR	1.76	1.15	1.29	1.52

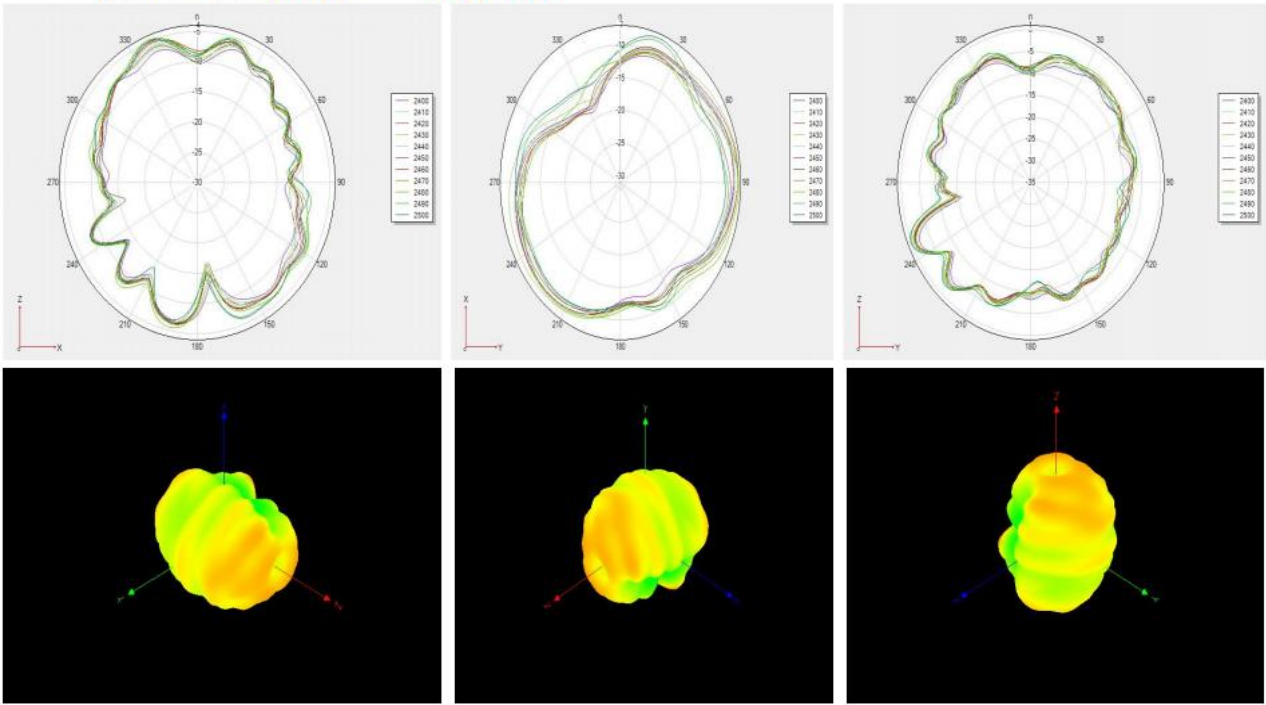
3.Test Result-R

3.2 Gain & Efficiency——ANT

Frequency (MHz)	Efficiency (%)	Max GAIN (dBi)
2400	25.74	-2.17
2410	25.71	-1.25
2420	26.49	-1.31
2430	27.45	-1.21
2440	27.61	-1.16
2450	28.18	-1.01
2460	27.44	-1.15
2470	26.22	-1.41
2480	25.98	-1.62
2490	25.18	-2.32
2500	24.61	-2.45

3.Test Result-R

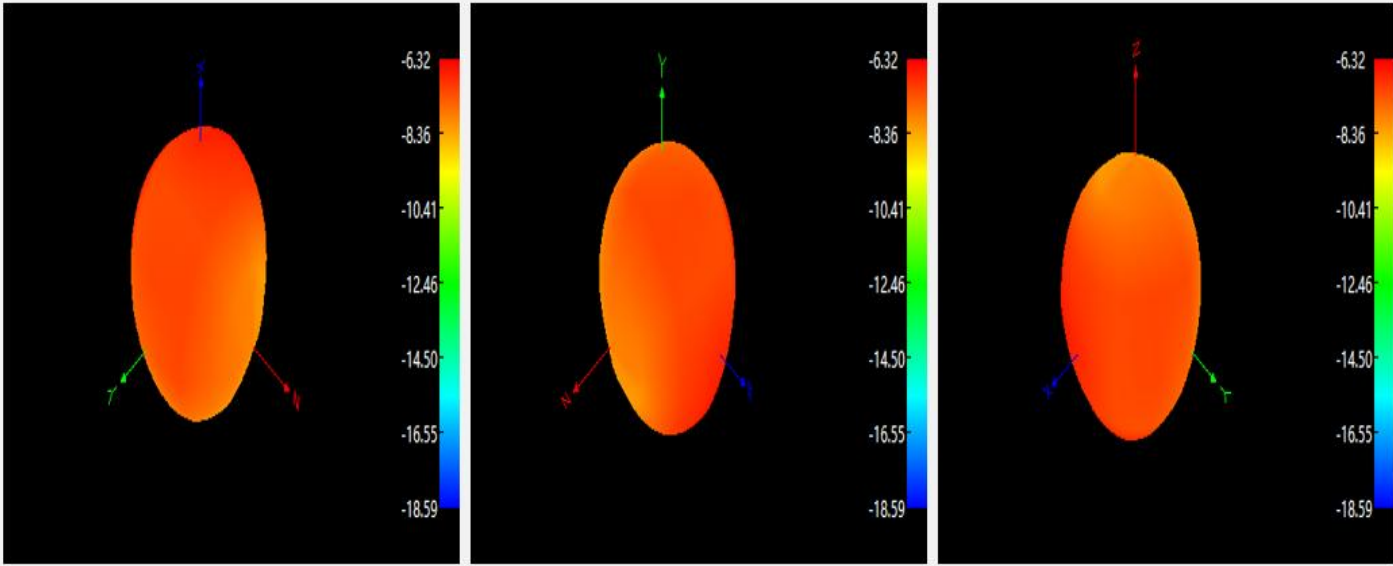
3.3 2D Pattern——BT ANT



3.OTA Data

Test Equipment:	R&S CMW500			
Test Condition:	3D chamber			
Band		Channel	TRP(dBm)	TIS(dBm)
BT	L	0	-6.59	-76.62
		39	-7.18	-74.65
		78	-7.78	-71.14

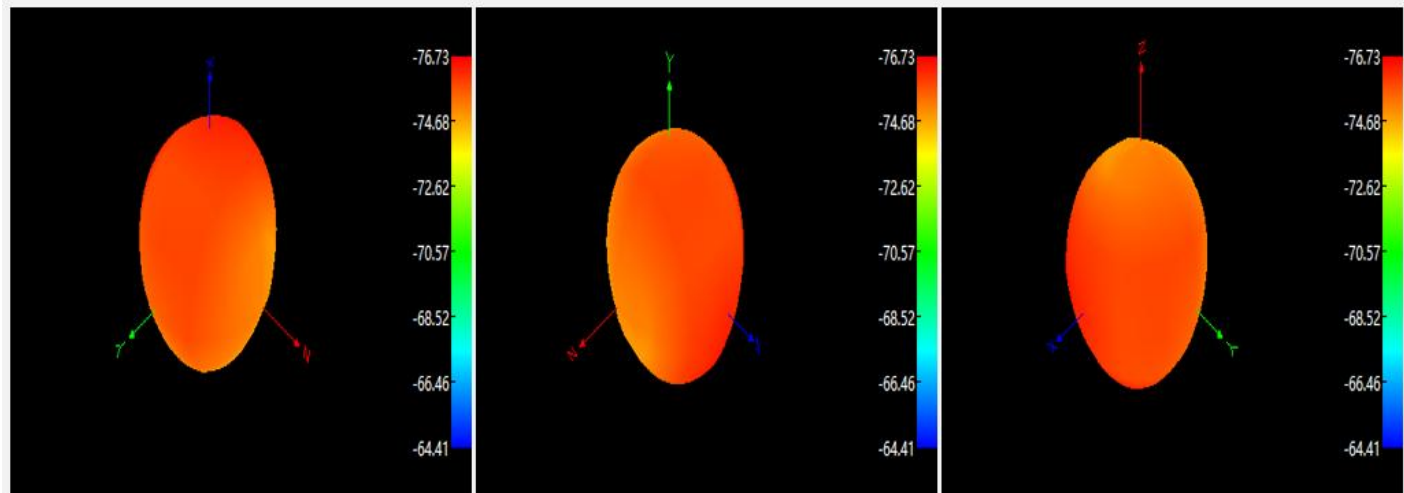
3.Test Result L-TRP



3.Test

Result

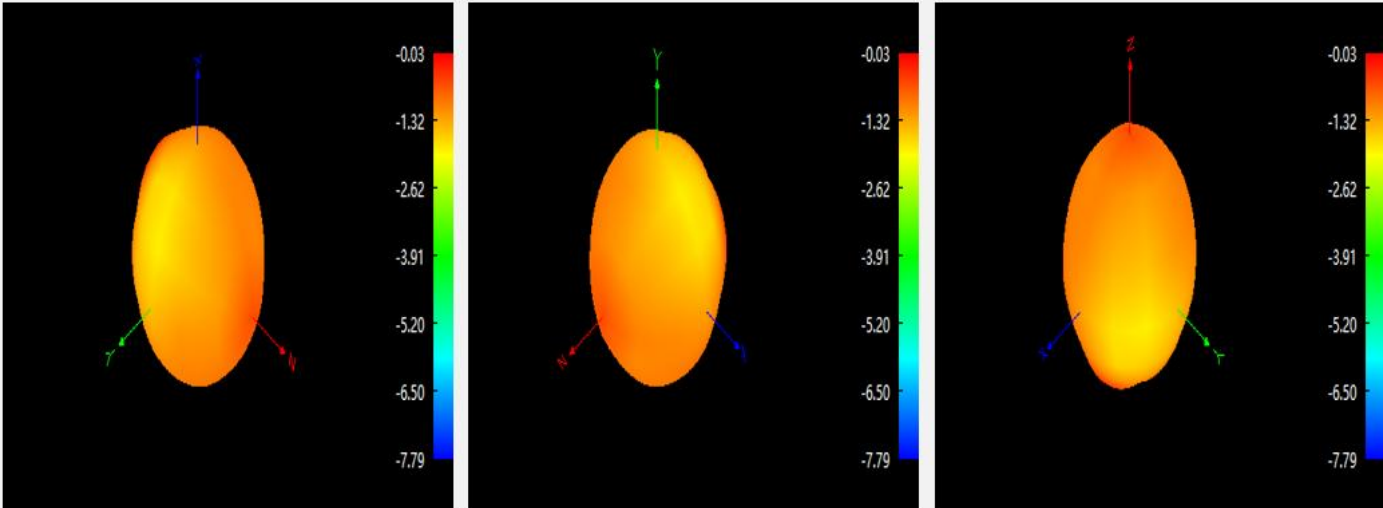
L-TIS



3.OTA Data

Test Equipment:	R&S CMW500			
Test Condition:	3D chamber			
Band		Channel	TRP(dBm)	TIS(dBm)
BT	R	0	-4.66	-81.17
		39	-3.35	-82.06
		78	-4.97	-76.50

3.Test Result R-TRP



3.Test Result R-IIS

